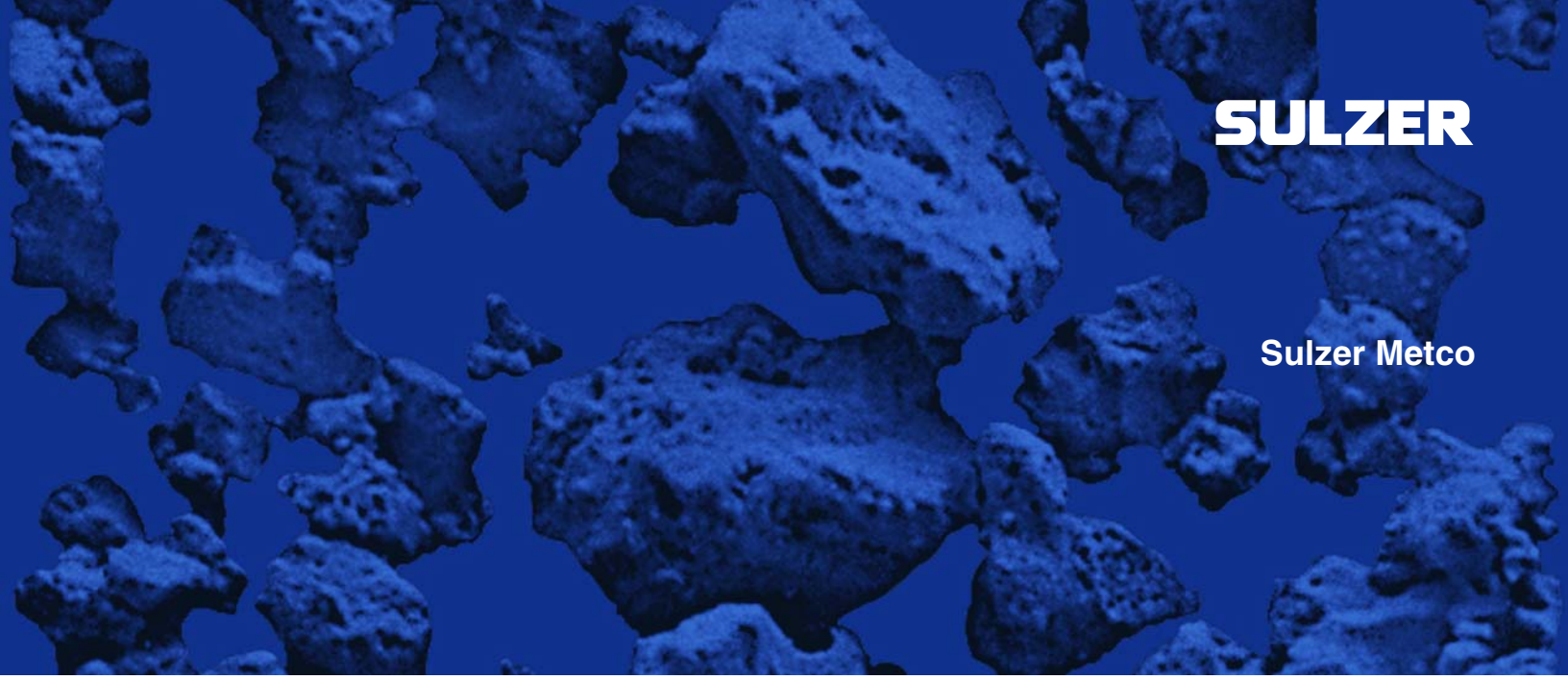

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Sulzer Metco

HVOF (High Velocity Oxy-Fuel) Materials Guide

Issued November 2003

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HVOF (High Velocity Oxy-Fuel) Materials Guide

Introduction

Sulzer Metco offers a broad product portfolio of materials for the HVOF process. These materials are specially formulated and optimized to produce high quality coating results for HVOF applications, and in particular, for use with Sulzer Metco Diamond Jet® coating systems. Coatings of these materials solve a variety of tough surface engineering problems, such as low temperature and high temperature wear resistance, oxidation and corrosion resistance, dimensional restoration for critical components, and more.

While the products in this guide represent our standard HVOF materials portfolio, many customers around the world have turned to Sulzer Metco to provide HVOF materials for their specific needs and requirements. We invite you to challenge us with yours, including sensitive, proprietary projects. Materials with particle sizes and distributions optimized for other HVOF spray systems, such as Jet Kote®, JP-5000™ and other gas and liquid fueled systems are available upon request. Please contact your Sulzer Metco sales representative for details.

Our quality commitment is evidenced by our ISO 9001/AS 9000 quality standards and NADCAP approved laboratories. Materials composition and particle size are verified through a stringent in-process testing program, with fine particle sizes verified using air classification. While coatings meeting these certifications are mandated for certain applications, compliance assures that our off-the-shelf solutions and custom thermal coating materials perform to your own demanding requirements.

For a complete listing of Sulzer Metco materials for all thermal spray processes, please refer to our *Thermal Spray Materials Guide*.

(Jet Kote is a registered trademark of Deloro Stellite. JP-5000 is a trademark of Praxair.)

Product Availability

The majority of the products listed in this guide are available worldwide; however, some products are only available on a regional basis. Regionally available products may be obtainable outside of the specified region as a special order. Please contact your Sulzer Metco account representative for further information.

Products, or product sizes, marked with this symbol are available only in Europe: **EU**

Products, or product sizes, marked with this symbol are available only in the Americas: **AM**

Chemical Symbols Used In This Guide:

Symbol	Element	Symbol	Element	Symbol	Element
Ag	Silver	In	Indium	Sb	Antimony
Al	Aluminum	M	Metal (undisclosed type)	Si	Silicon
B	Boron	Mg	Magnesium	Sn	Tin
C	Carbon or Carbide	Mn	Manganese	Ta	Tantalum
Ca	Calcium	Mo	Molybdenum	Ti	Titanium
Co	Cobalt	N	Nitrogen	V	Vanadium
Cr	Chrome	Nb (Cb)	Niobium	W	Tungsten
Cu	Copper	Ni	Nickel	Y	Yttrium
Fe	Iron	O	Oxygen	Zn	Zinc
H	Hydrogen	P	Phosphorus	Zr	Zirconium
Hf	Hafnium	Pb	Lead		

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Metals, Alloys and Blends / Cobalt Base

New!
Diamalloy 4454
Chemistry: Co 32Ni 21Cr 8Al 0.5Y
Particle Size: -45 +22 µm (-325 mesh +22 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Provides oxidation and hot corrosion resistance for hot section turbine components where thicker coatings are required.

AMDRY 9951
Chemistry: Co 32Ni 21Cr 8Al 0.5Y
Particle Size: -37 +5 µm (-400 mesh + 5 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: For demanding aerospace applications in a size which suitable for chambered plasma spray. Used for protection in hot corrosive or oxidizing environments up to approximately 1050°C (1920°F) for heat treated chambered coatings.

OEM Specifications:
Rolls-Royce MSRR 9507/73
SNECMA DMR 33.095

AMDRY 9954
Chemistry: Co 32Ni 21Cr 8Al 0.5Y
Particle Size: -62 + 11 µm
Morphology: Spheroidal, Gas Atomized
Properties & Applications: For demanding aerospace applications in a size which is suitable for chambered plasma spray or air plasma spray. Used for protection in hot corrosive or oxidizing environments up to approximately 1050°C (1920°F) for heat treated chambered coatings and approximately 850°C (1560°F) for aps coatings.

OEM Specifications:
GE B50TF195, Class A
Honeywell Allied Signal EMS 57741, Grade B
Howmet CD 1128

New!
Diamalloy 4700
Chemistry: Co 32Ni 21Cr 8Al 0.5Y
Particle Size: -45 +15 µm (-325 mesh + 15 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: For demanding aerospace applications in a size which is suitable for HVOF spray. Used for protection in hot corrosive or oxidizing environments.

OEM Specifications:
Rolls-Royce MSRR 9507/86

Diamalloy 3002NS
Chemistry: Co 28Mo 8Cr 2Si
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Water Atomized
Properties & Applications: Similar to Tribaloy®* 400. Coatings perform well in reducing environments such as hydrochloric, formic and sulfuric acids; oxidizing environments, such as ferric chloride; non-oxidizing environments, such as phosphoric and acetic acid and salt water. Particularly suitable where lubrication is low or non-existent. Excellent sliding wear resistance combined with good hot corrosion resistance and moderate oxidation resistance, at temperatures to approximately 800°C (1470°F). (*Tribaloy is a registered trademark of Deloro Stellite, Inc.)

OEM Specifications:
GE B50TF155, Class A

Metals, Alloys and Blends / Cobalt Base (continued)

New!
Diamalloy4060NS

OEM Specifications:
GE B50A960

Chemistry: Co 28Cr 4W 3Ni 3Fe 1.5Si 1C 1Mo
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Similar to Stellite® 6. Used as a general restoration and repair material when compatibility with Stellite 6 is desirable. Forms dense, wear resistant, oxidation resistant coatings which may be used for turbine hot section applications such as combustion liners. Formerly sold as XPT-D-1056.
(*Stellite is a registered trademark of Deloro Stellite, Inc.)

Diamalloy 3001NS

OEM Specifications:
GE B50TF190, Class A

Chemistry: Co 28Mo 17Cr 3Si
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Water Atomized
Properties & Applications: Similar to Tribaloy®* 800. Coatings perform well in reducing environments such as hydrochloric, formic and sulfuric acids; oxidizing environments, such as ferric chloride; non-oxidizing environments, such as phosphoric and acetic acid and salt water. Particularly suitable where lubrication is low or non-existent. Excellent sliding wear resistance combined with good hot corrosion resistance and moderate oxidation resistance, at temperatures to approximately 800°C (1470°F).
(*Tribaloy is a registered trademark of Deloro Stellite, Inc.)

Metals, Alloys and Blends / Copper Base

Diamalloy 1007

Chemistry:	Cu 99%
Particle Size:	-88 +31 µm
Morphology:	Spheroidal, Gas Atomized
Properties & Applications:	Good electrical and thermal conductivity. Used in the paper and printing industry to resist corrosive effects of inks. Can be used for build-up and repair of copper base alloys. Non-magnetic, can be used for electromagnetic shielding.

Diamalloy 1004

Chemistry:	Cu 9.5Al 1Fe Aluminum Bronze
Particle Size:	-45 +15 µm (-325 mesh +15 µm)
Morphology:	Spheroidal, Gas Atomized
Properties & Applications:	Typical parts which may be coated are pumps (cavitation resistance), piston guides (soft bearing surfaces), shifter forks and compressor air seals. Moderate oxidation, wear and fretting resistance at low temperatures, good emergency dry running properties. Can be used for build-up and repair of copper base alloy parts. Melting temperature 1040ºC (1900ºF).

Metals, Alloys and Blends / Iron Base

Diamalloy 1003

Chemistry: Fe 17Cr 12Ni 2.5Mo 1Si 0.1C (AISI Type 316 stainless steel)
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Premium grade austenitic nickel-chrome stainless steel. Coatings can be easily machined. Recommended for cavitation and low temperature erosion resistance.

Diamalloy 1008

Chemistry: Fe 17Cr 11Mo 3Ni 3Si 3Cu 4B 0.4C
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Iron based hardfacing material developed for corrosive wear applications below 650ºC (1200ºF).

Diamalloy 4010

Chemistry: Fe 30Mo 2C
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Developed as an alternative to hard chrome plating. Protection against abrasive grains, wear from hard bearing surfaces and fretting.

Metals, Alloys and Blends / Nickel Base

Diamalloy 4008NS

OEM Specifications:
GE B50TF56, Class C
Rolls-Royce Allison EMS 39661

Chemistry: Ni 5Al
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Coatings are dense and resistant to oxidation and abrasion. Used as an oxidation-resistant bond coats which can be used up to 800ºC (1470ºF). Self-bonding and undergoes an exothermic reaction during spraying, resulting in excellent bonding to the substrate. Applications: salvage and build-up on machinable carbon and corrosion resistant steels, particle erosion resistance for exhaust valve seats, oxidation resistance for exhaust mufflers and heat treating fixtures.

New! AMDRY 4532

Chemistry: Ni 20Cr
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Coatings are dense and designed to resist oxidation and corrosive gases in temperatures to 980ºC (1800ºF). Used to resist heat and prevent scaling of carbon and low alloy steels in hot atmospheres.

New! AMDRY 4535

Chemistry: Ni 20Cr
Particle Size: -45 +22 µm (-325 mesh +22 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: High deposit efficiency material that produces coatings that are dense and designed to resist oxidation and corrosive gases in temperatures to 980ºC (1800ºF). Used to resist heat and prevent scaling of carbon and low alloy steels in hot atmospheres.

Diamalloy 1005

Chemistry: Ni 21.5Cr 8.5Mo 3Fe 0.5Co
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Similar to Inconel®* 625 and intended for restoration of worn or mismachined components of Inconel 625 or similar material.
(Inconel is a registered trademark of INCO)

Diamalloy 4004NS

OEM Specifications:
GE B50TF183, Class C

Chemistry: Ni 14Cr 9.5Co 5Ti 4Mo 4W 3Al
Particle Size: -45 + 15 µm (-325 mesh + 15 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Similar to RENE®* 80. Oxidation and corrosion resistance up to 1000ºC (1850ºF). Applications: surface restoration of worn or damaged parts such as airfoils, combustors, blades or vanes in gas turbines.
(*RENE is a registered trademark of GE)

Diamalloy 1006

Chemistry: Ni 19Cr 18Fe 3Mo 1Co 1Ti
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Similar to Inconel®* 718. Superalloy powder intended for restoration of worn or mismachined Inconel® 718 components.
(Inconel is a registered trademark of INCO)

Metals, Alloys and Blends / Nickel Base (continued)

Diamalloy 4006

Chemistry: Ni 20Cr 10W 9Mo 4Cu 1C 1B 1Fe
Particle Size: -53 + 11µm (-270 mesh +11 µm)
Morphology: Spheroidal, Water Atomized
Properties & Applications: Coatings offer sliding wear and corrosion protection. High hot hardness. Coatings resist scuffing and galling. Coatings contain glassy (amorphous / microcrystalline) phases due to additions of refractory metals and metalloids enhancing corrosion resistance.

AMDRY 1718

Chemistry: Ni 19Cr 18Fe 3Mo 5(Nb+Ta) 0.5Al 1Ti .05C
Particle Size: -325 mesh +15 µm
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Oxidation and corrosion resistant up to approximately 1000ºC (1850ºF). Designed for use on superalloys, especially Inconel®* 713 and 718.
(Inconel is a registered trademark of INCO)

OEM Specifications:
GE B50TF202, Class D
SNECMA DMR 33.502

Sulzer Metco 4538

Chemistry: Ni 23Fe 16Cr 1.5Si
Particle Size: -45 +16 µm (-325 mesh +16 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Heat and oxidation resistant coatings.

OEM Specifications:
GE B50TF290, Class A

AMDRY 997

Chemistry: Ni 23Co 20Cr 8.5Al 4Ta 0.6Y
Particle Size: -37 µm (-400 mesh)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Can be used as hot corrosion and oxidation resistant bond coats for thermal barrier coatings (TBC) of zirconia.

OEM Specifications:
Turbomeca LA 657 PF1 Ind. 0

AMDRY 365-1

Chemistry: Proprietary MCrAlY
Particle Size: -45 +5 µm (-325 mesh +5 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Proprietary alloy available to approved users. The maximum operating temperature for the heat treated chambered-sprayed coatings is approximately 850ºC (1560ºF).

OEM Specifications:
Pratt Whitney PWA 1365-1

AMDRY 373

Chemistry: Proprietary MCrAlY
Particle Size: -45 +5.5 µm (-325 +5.5 µm)
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Proprietary alloy available to approved users. The maximum operating temperature for the heat treated chambered-sprayed coatings is approximately 850ºC (1560ºF).

OEM Specifications:
Pratt Whitney PWA 1373-1

AMDRY 386

Chemistry: Proprietary MCrAlY
Morphology: Spheroidal, Gas Atomized
Properties & Applications: Proprietary alloy available to approved users. The maximum operating temperature for the heat treated chambered-sprayed coatings is approximately 850ºC (1560ºF).

OEM Specifications:
Howmet CD 1115
Pratt Whitney PWA 1386-1

Carbide Powders / Chrome Carbide

Metco 82VF-NS

OEM Specifications:
Pratt Whitney PWA 1364

Chemistry: Cr_3C_2 7(Ni 20Cr)
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Best chromium carbide for resistance to high temperature fretting and wear. Recommended for PWA 257-2 coatings.

Diamalloy 3005

Chemistry: Cr_3C_2 7(Ni 20Cr)
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Best chromium carbide for resistance to high temperature fretting and wear. Recommend for use with Sulzer Metco DiamondJet® HVOF systems.

Diamalloy 3007

OEM Specifications:
Pratt Whitney PWA 36332

Chemistry: Cr_3C_2 20(Ni 20Cr)
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Clad
Properties & Applications: Coatings have the highest micro and macrohardness and finest as-sprayed surface finish of any Diamalloy chromium carbide. Recommended for severe abrasive and fretting wear applications in the temperature range between 540-815ºC (1000-1500ºF). Coatings exhibit excellent solid particle erosion resistance properties.

AMDRY 5260

OEM Specifications:
GE B50TF263, Class A

Chemistry: Cr_3C_2 25(Ni 20Cr)
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Spheroidal, Agglomerated and Densified
Properties & Applications: Good sliding properties. Produces dense erosion and corrosion resistant coatings.

Diamalloy 3004

Chemistry: Cr_3C_2 25(Ni 20Cr)
Particle Size: -45+ 5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Recommended for use with Sulzer Metco Diamond Jet HVOF systems. Good abrasion, particle erosion, cavitation and fretting resistance up to 815ºC (1500ºF). Good corrosion resistance. Good hot gas corrosion resistance, particularly in sulphurous gases. Oxidation and erosion resistant up to approximately 900ºC (1650ºF). Applications: fuel rod mandrels and hot forming dies, hydraulic valves, tooling, machine parts, pump housing and wear protection of aluminum parts.

Sulzer Metco 5255

OEM Specifications:
Pratt Whitney PWA 36333

Chemistry: Cr_3C_2 50(Ni 20Cr)
Particle Size: -62 +7.8 µm
Morphology: Blend
Properties & Applications: High temperature erosion and corrosion resistant coatings.

Carbide Powders / Chrome Carbide (Continued)

Diamalloy 3006

Chemistry: Cr_3C_2 50(Ni 20Cr)
Particle Size: -88 +5.5 µm
Morphology: Clad
Properties & Applications: High NiChrome content produces coatings that are very tough. Recommended for applications requiring resistance to wear by hard surfaces and abrasive particles at elevated temperatures between 540-815ºC (1000-1500ºF).

Sulzer Metco 5241

Chemistry: Cr 39Ni 7C
Particle Size: -63 µm (-170 mesh)
Morphology: Proprietary
Properties & Applications: Ideal for hard chrome replacement Higher deposition efficiency compared to other HVOF sprayed chromium carbide powders Lower oxide-containing coatings, lower carbon loss during spraying Excellent erosion and oxidation properties up to 900ºC (1650ºF). Good wear properties and corrosion resistance. Excellent superfinished surface (0.25 µm, 1 µin.). Applications: ball valves, hydraulic rods, boiler tubes, stationary and flight turbine components, textile rolls, exhaust stacks.

Carbide Powders / Tungsten Carbide

Sulzer Metco 5810
Chemistry: WC 12Co
Particle Size: -63 +11 µm (-230 mesh +11 µm)
Morphology: Spherical Composite
Properties & Applications: Ideal for hard chrome replacement. Low cost WC when applied using Diamond Jet® standard air-cooled hardware. Produces smooth, hard, abrasion resistant surfaces. Applications: steel rolls, agricultural rasp bars.

Sulzer Metco 5812
Chemistry: WC 12Co
Particle Size: -53 +11 µm (-270 mesh +11 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Ideal for hard chrome replacement. High abrasion, erosion and sliding wear resistance. Produces smooth as-sprayed surface for applications where grinding cannot be done. Produces compressive coatings. Applications: pump housings, exhaust fans and machine parts.

New! EU Diamalloy 5814
Chemistry: WC 12Co
Particle Size: -38 +15 µm (-400 mesh +15 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Produces hard and very dense coatings with a smooth as-sprayed surface finish that are resistant to abrasion, erosion and sliding wear and have good resistance to fretting. Recommended for machine parts and pump housings. Not recommended for corrosive environments.

New! EU Diamalloy 5814F
Chemistry: WC 12Co
Particle Size: -22 +5 µm
Morphology: Agglomerated and Sintered
Properties & Applications: Produces hard and very dense coatings with a very smooth as-sprayed surface finish that are resistant to abrasion, erosion and sliding wear and have good resistance to fretting. Recommended for machine parts and pump housings. Not recommended for corrosive environments. Not for use with Diamond Jet equipment; should only be used with HVOF equipment that accepts fine powders.

New! AM Diamalloy 5815
Chemistry: WC 12Co
Particle Size: Sized for Diamond Jet and kerosene-based HVOF guns
Morphology: Agglomerated and Sintered
Properties & Applications: Resistance against abrasion, erosion and sliding wear. Recommended for use on sucker rod couplings, exhaust fans, conveyor screws, thread guides, impeller shafts, anti-galling sleeves, oil field ball and gate valves.

New! Diamalloy 5872NS
Chemistry: WC 12Co
Particle Size: -32 +3 µm
Morphology: Agglomerated and Sintered
Properties & Applications: For use with Praxair JP-5000 spray equipment. Resists abrasion, erosion and sliding wear. Formerly available as SPM5-2470.

OEM Specifications:
GE B50TF27 S8, Class A *(chemistry only)*

Carbide Powders / Tungsten Carbide (Continued)

Diamalloy 2004

Chemistry: WC 12Co
Particle Size: -45 +5 µm (-325 mesh +5 µm)
Morphology: Sintered
Properties & Applications: Resistant to abrasion and erosion. Good sliding wear resistance. Diamalloy 2004 produces superior coatings for abrasion and erosion resistance. Do not use above 500ºC (930ºF) or in corrosive media. Coatings are hard and dense with good bond strengths. Good fretting resistance. Used for machine parts, pump housing, etc.

OEM Specifications:
GE B50TF27 S8, Class B *(made to order only)*
Honeywell Allied Signal EMS 57736 *(except physical and chemistry - made to order only)*

Diamalloy 2003

Chemistry: W_2C / WC 12Co
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Fused
Properties & Applications: Resistant to abrasion and erosion. Good sliding wear resistance. Do not use above 500ºC (930ºF) or in corrosive media. Coatings are hard and dense with good bond strengths. Good fretting resistance. Used for machine parts, pump housing, etc.

AMDRY 5843

Chemistry: WC 10Co 4Cr
Particle Size: -45 + 11 µm (-325 + 11 µm)
Morphology: Blocky, Sintered and Crushed
Properties & Applications: Ideal for hard chrome replacement. Resistant to erosion and abrasion. Recommended for use in water based solutions. The CoCr matrix provides higher abrasion and corrosion resistance than Co matrixes. Used in the paper industry for protecting rolls against wear in wet corrosive environments.

New! EU Diamalloy 5844

Chemistry: WC 10Co 4Cr
Particle Size: -38 +15 µm (-400 mesh +15 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Produces very hard and dense coatings with a very smooth as-sprayed surface finish. Coatings are abrasion and erosion resistant and may be used in aqueous and wet corrosive environments. Recommended for use on paper manufacturing machinery and as a replacement for hard chrome plate.

Sulzer Metco 5847

Chemistry: WC 10Co 4Cr
Particle Size: -53 + 11 µm (-270 mesh + 11 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Ideal for hard chrome replacement. Produces compressive coatings. Excellent corrosion, erosion and abrasion resistance. Can be ground to high finishes. Applications: wet corrosive environments, aircraft landing gear, paper industry.

OEM Specifications:
Boeing BMS 10-67K Type XVII

New! AM Diamalloy 5848

Chemistry: WC 10Co 4Cr
Particle Size: Sized for Diamond Jet and kerosene-based HVOF guns
Morphology: Agglomerated and Sintered
Properties & Applications: Resistance against abrasion and erosion in corrosive environments. Recommended for use on slurry pump components, hydroelectric power plant turbine parts, and as an alternative to hard chrome plating.

Carbide Powders / Tungsten Carbide (Continued)

New!
Diamalloy 5849
Chemistry: WC 10Co 4Cr
Particle Size: -45 + 11 µm (-325 + 11 µm)
Morphology: Sintered and Crushed
Properties & Applications: Ideal for hard chrome replacement. Resistant to erosion and abrasion. Recommended for use in water based solutions. The CoCr matrix provides higher abrasion and corrosion resistance than Co matrixes. Used in the paper industry for protecting rolls against wear in wet corrosive environments.

New!
EU Diamalloy 5834
Chemistry: WC 10Co 4Cr 1Ni
Particle Size: -38 +15 µm (-400 mesh +15 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Produces very dense coatings with a smooth as-sprayed surface finish and good hardness. Sprays with high deposition efficiency. Coatings are abrasion and erosion resistant and may be used to resist corrosion in aqueous environments. Recommended for use on paper manufacturing machinery and as a replacement for hard chrome plate.

New!
EU Diamalloy 5824
Chemistry: WC 17Co
Particle Size: -38 +15 µm (-400 mesh +15 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Produces tough, dense coatings with a smooth as-sprayed surface finish with good resistance to abrasion, erosion and sliding wear and have good resistance to fretting. Recommended for machine roll applications where resistance to impact is required. Not for use at temperatures above 500 ºC (930 ºF) or in corrosive environments.

New!
Diamalloy 5826
Chemistry: WC 17Co
Particle Size: Sized for Diamond Jet and kerosene-based HVOF guns
Morphology: Agglomerated and Sintered
Properties & Applications: Higher toughness and fretting resistance than carbide coatings with a 12% Co resulting from the higher cobalt levels. Resists against abrasion, erosion and sliding wear. Typical applications include aircraft flap tracks, sucker rod couplings, extrusion dies, exhaust fans, wire drawing capstans and impeller shafts (hard bearings) Not for use at temperatures above 500 ºC (930 ºF) or in corrosive environments.

Metco 73F
Chemistry: WC 17Co
Particle Size: -53 +11 µm (-270 mesh +11 µm)
Morphology: Spray Dried / Sintered
Properties & Applications: Ideal for hard chrome replacement. High toughness and fretting wear resistance. Produces compressive coatings. Well bonded, smooth as-sprayed surfaces. Can be ground to high finishes. Applications: landing gear, shifter forks, pump seals, dump valves, polished rod liners.

Carbide Powders / Tungsten Carbide (Continued)

Diamalloy 2005NS

Chemistry: WC 17Co
Particle Size: -53 +11 µm (-270 mesh +11 µm)
Morphology: Spray Dried / Sintered
Properties & Applications: Suitable for hard chrome replacement. Higher toughness and fretting resistance than 12% Co coatings due to higher cobalt levels. For protection against sliding wear, hammer wear, abrasion and fretting. Do not use above 500ºC (930ºF) or in corrosive media. Applications: mid-span stiffeners (gas turbine engine blades), aircraft flap tracks, sucker rod couplings, extrusion dies and exhaust fans.

OEM Specifications:
Boeing BMS 10-67, Type I
Chemtronics Op. Man. 5.4.3
de Havilland DHMS C4.19
GE B50TF167, Class A
Pratt Whitney PWA 36331-2
Rolls-Royce Allison EMS 39660
Volvo PM 819-63

Diamalloy 2006

Chemistry: WC 17Co
Particle Size: -30 +5.5 µm
Morphology: Spray Dried / Sintered
Properties & Applications: Suitable for hard chrome replacement. Higher toughness and fretting resistance than 12% Co coatings due to higher cobalt levels. For protection against sliding wear, hammer wear, abrasion and fretting. Do not use above 500ºC (930ºF) or in corrosive media. Applications: mid-span stiffeners (gas turbine engine blades), aircraft flap tracks, sucker rod couplings, extrusion dies and exhaust fans.

EU Sulzer Metco 5845

Chemistry: WC 20CrC 7Ni
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Sintered
Properties & Applications: Coatings provide resistance to wear at higher temperatures; provides protection in chemical environments of lye and organic acids. Cobalt free. Used in the nuclear and in the paper industries. Formerly supplied as XPT-D-970.

New!

EU Diamalloy 5846

Chemistry: WC 20CrC 7Ni
Particle Size: -38 +15 µm (-400 mesh +15 µm)
Morphology: Agglomerated and Sintered
Properties & Applications: Coatings provide resistance to wear at higher temperatures; provides protection in chemical environments of lye and organic acids. Smooth as-sprayed surface finish with high deposit efficiency. Cobalt free. Used in the nuclear and in the paper industries. Formerly supplied as XPT-D-1054.

Sulzer Metco 5803

Chemistry: (WC 12Co) 25(Ni-Based Superalloy)
Particle Size: -45 +11 µm (-325 mesh +11 µm)
Morphology: Blend
Properties & Applications: Ideal for hard chrome replacement. Excellent corrosion resistance and easy machinability. Coatings resist abrasion, fretting and fatigue cracking.

OEM Specifications:
U. S. Military MIL-STD-1687

Sulzer Metco 5860

Chemistry: WC 12Co 35(Cr3C2 / 20(Ni 20Cr))
Particle Size: -45 +5.5 µm (-325 mesh +5.5 µm)
Morphology: Blend
Properties & Applications: Ideal for hard chrome replacement. High corrosion resistance. Good abrasion, erosion and fretting resistance. Applications: petrochemical gate valves.

Self-Fluxing Powders / Nickel Base

Diamalloy 2001

Chemistry:	Ni 17Cr 4Fe 4Si 3.5B 1C
Particle Size:	-45 +15 µm (-325 mesh +15 µm)
Morphology:	Spheroidal, Gas Atomized
Properties & Applications:	Can be used in the as-sprayed or fused condition. Coatings are dense, hard and essentially oxide free. Very dense self-fluxing alloy coatings. Readily coalesce during fusing. Resistant to abrasive grains, hard surfaces, cavitation, particle erosion and fretting. Offers the best corrosion resistance of all the self-fluxing alloys. Applications: cam followers, wear rings and utility exhaust fans.

Diamalloy 2002

Chemistry:	(WC 12Co) 33Ni 9Cr 3.5Fe 2Si 2B 0.5C
Particle Size:	-45 +11 µm (-325 mesh +11µm)
Morphology:	Blend
Properties & Applications:	Coatings are very dense and effectively resist wear by abrasive grains, hard surfaces, particle erosion/abrasion and fretting at temperatures to 540ºC (1000ºF).

Global Solutions and Services Essential to Business Success

Sulzer Metco is a global leader in surface engineering solutions and services, offering:

a broad range of thermal spray, thin film and other advanced surface technology equipment, integrated systems and materials
specialized coating and surface enhancement services
manufactured components for the turbine, automotive and other industries
global customer support services

Sulzer Metco provides a global manufacturing, distribution and service network and caters to aerospace, power generation, automotive and other strategic growth industries. To take control of your surface engineering challenges, contact your Sulzer Metco sales office, visit our website at *www.sulzermetco.com* or email us at *info@sulzermetco.com*.

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